

AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Canceled)
2. (Original) An image sensor test apparatus ~~as set forth in claim 1, further provided with~~ configured to bring input/output terminals of an image sensor into contact with a contact part of a test head so as to input/output electrical signals with respect to input/output terminals of the image sensor from the test head while emitting light to a light receiving surface of the image sensor from a light source, the image sensor test apparatus comprising:
 - a contact arm configured to hold the image sensor and bring the image sensor into contact with the contact part of the test head;
 - a moving device configured to move the contact arm;
 - an attachment portion configured to attach the light source to the image sensor test apparatus;
 - a calculator configured to calculate a relative amount of deviation of an optical axis of the light receiving surface of the image sensor with respect to an optical axis of the light source;
 - a first image capturing means for capturing an device configured to capture a first image of [[an]] the image sensor in the state held at said the contact arm from said the light receiving surface side; and
 - an image processing means for recognizing processor configured to recognize the relative position of said the image sensor in the state held at said the contact arm with

respect to said the contact part based on ~~image information captured by said the first~~
~~image capturing means,~~

~~said correcting means provided at said base side and correcting a corrector~~
~~configured to correct the position of said the contact arm in the state holding said the~~
~~image sensor based on the relative amount of deviation of the optical axis of said image~~
~~sensor calculated by said calculating means the calculator and the relative position of said~~
~~the image sensor recognized by said the image processing means processor.~~

3. (Currently Amended) ~~An~~ The image sensor test apparatus as set forth in ~~claim-~~
~~1~~ claim 2, wherein ~~said calculating means the calculator~~ calculates said the relative
amount of deviation of the optical axis of the image sensor with respect to the optical axis
of the light source based on the electrical signals outputted from the ~~input and output~~
input/output terminals of said the image sensor with respect to the contact part of said the
test head while emitting light from said the light source toward the light receiving surface
of said the image sensor in the state contacting said the contact part.

4. (Currently Amended) ~~An~~ The image sensor test apparatus as set forth in claim
2, wherein said the image ~~processing means recognize~~ processor recognizes the relative
position of said the image sensor with respect to said the contact part based on a chip of
said the image sensor in the first ~~image information captured by said first image capturing~~
~~means.~~

5. (Currently Amended) ~~An~~ The image sensor test apparatus as set forth in claim
2, wherein said the image ~~processing means~~ processor recognizes the relative position of
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~~said the~~ image sensor with respect to ~~said the~~ contact part based on ~~input and output~~
~~input/output~~ terminals of ~~said the~~ image sensor in the first image information captured by
~~said first image capturing means.~~

6. (Currently Amended) ~~An~~ The image sensor test apparatus as set forth in claim
2, wherein

~~the apparatus is further provided with~~ further comprising a transparent
carrying surface on which ~~said the~~ image sensor is carried, wherein:

~~said the~~ contact arm has an upper contact for electrically connecting the ~~input and~~
~~output~~ input/output terminals led out to the surface of ~~said the~~ image sensor opposite to
the light receiving surface to ~~said the~~ contact part, and

~~said the~~ carrying surface is movable to any position in an X-Y plane substantially
parallel to ~~said the~~ contact part.

7. (Currently Amended) ~~An~~ The image sensor test apparatus as set forth in claim
2, wherein

~~the apparatus is further provided with~~ further comprising a second image
capturing means for capturing and device configured to capture a second image of ~~said~~
the contact part, and wherein

~~said the~~ image ~~processing means~~ processor recognizes the relative position
of ~~said the~~ image sensor in the state held at ~~said the~~ contact arm with respect to ~~said the~~
contact part based on the first image information captured by ~~said first image capturing~~
~~means and said the~~ second image capturing means.

8. (Currently Amended) ~~An~~ The image sensor test apparatus as set forth in ~~claim 1~~ claim 2, wherein each contact arm ~~is provided with~~ comprises:

a holding side arm ~~holding said~~ configured to hold the image sensor[[,]]; and

a root side arm fixed to ~~said the~~ the moving ~~means~~ device[[,]]; and

a lock-and-free ~~means~~ device provided between ~~said the~~ the holding side and ~~said the~~ the root side arms and configured to be able to lock or free planar movement of ~~said the~~ the holding side arm with respect to ~~said the~~ the root side arm in an X-Y plane substantially parallel to ~~said the~~ the contact part.

9. (Currently Amended) ~~An~~ The image sensor test apparatus as set forth in claim 8, wherein each contact arm [[is]] ~~further provided with~~ comprises a tilting ~~means~~ device configured to be able to rotate ~~said the~~ the image sensor about any axis parallel to ~~said the~~ the X-Y plane.

10. (Currently Amended) ~~An~~ The image sensor test apparatus as set forth in claim 8, wherein ~~said correcting means~~ the corrector has drive units ~~moving said~~ configured to move the holding side arm freed by ~~said the~~ the lock-and-free ~~means~~ device to any position in ~~said the~~ the X-Y plane.

11. (Currently Amended) ~~An~~ The image sensor test apparatus as set forth in claim 10, wherein ~~said the~~ the drive units include:

a first drive unit ~~moving said~~ configured to move the holding side arm in the X-axial direction in ~~said the~~ the X-Y plane[[,]]; and

a second drive unit ~~moving said~~ configured to move the holding side arm in the Y-axial direction[[,]]; and

a third drive unit ~~rotating said~~ configured to rotate the holding side arm about any point within ~~said~~ the X-Y plane.

12. (Currently Amended) ~~An~~ The image sensor test apparatus as set forth in claim 10, wherein ~~said~~ the carrying surface moves in ~~said~~ the X-Y plane by the drive unit provided in ~~said correcting means~~ the corrector.

13. (Currently Amended) ~~An~~ The image sensor test apparatus as set forth in claim 8, wherein each holding side arm has one or more abutting members contacting ~~said correcting means~~ the corrector.

14. (Currently Amended) ~~An~~ The image sensor test apparatus as set forth in claim 13, wherein each abutting member is ~~provided with~~ has either a projection or recess formed at a front end of ~~said~~ the abutting member, and ~~said correcting means is provided with~~ the corrector has the other of the projection or recess engageable with the above projection or recess.

15. (Currently Amended) ~~An~~ The image sensor test apparatus as set forth in ~~claim 1~~ claim 2, wherein a ~~reflecting means reflecting~~ reflector configured to reflect an image is provided on the optical axis of ~~said~~ the first image capturing ~~means~~ device.

16. (Canceled)

17. (Currently Amended) ~~An image sensor test method as set forth in claim 16,~~
~~further provided with~~ for bringing input/output terminals of an image sensor into contact
with a contact part of a test head by a contact arm and inputting/outputting electrical
signals with respect to input/output terminals of the image sensor from the test head while
emitting light on light receiving surface of the image sensor from a light source, the
method comprising:

calculating a relative amount of deviation of an optical axis of the image sensor
with respect to an optical axis of the light source;

~~a first image capturing step of capturing an~~ a first image of ~~said the~~ the image sensor
in the state held at ~~said the~~ the contact arm from ~~said the~~ the light receiving surface side and;

~~a first recognizing step of recognizing the relative position of said the~~ the image
sensor in the state held at ~~said the~~ the contact arm with respect to ~~said the~~ the contact part based
on the first image information captured in ~~said first image capturing step;~~ and

~~in said first correcting step,~~ the position of ~~said the~~ the contact arm in the state
holding ~~said the~~ the image sensor is ~~corrected~~ based on the relative amount of deviation of
~~the optical axis of said image sensor calculated in said calculating step and the relative~~
position of ~~said the~~ the image sensor recognized in ~~said first recognizing step.~~

18. (Currently Amended) ~~An~~ The image sensor test method as set forth in ~~claim~~
~~16 claim 17,~~ wherein, ~~in said calculating step,~~ said the relative amount of deviation of ~~the~~
~~optical axis of the image sensor with respect to the optical axis of the light source-~~ is
~~calculated~~ based on the electrical signals outputted from the ~~input and output~~ input/output
terminals of ~~said the~~ the image sensor with respect to the contact part of ~~said the~~ the test head

while emitting light from a light source toward a light receiving surface of ~~said~~ the image sensor in the state contacting ~~said~~ the contact part.

19. (Currently Amended) ~~An~~ The image sensor test method as set forth in claim 17, wherein, ~~in said first recognizing step,~~ the relative position of ~~said~~ the image sensor with respect to ~~said~~ the contact part is ~~recognized~~ based on a chip of ~~said~~ the image sensor in the first image information captured in ~~said first image capturing step.~~

20. (Currently Amended) ~~An~~ The image sensor test method as set forth in claim 17, wherein, ~~in said first recognizing step,~~ the relative position of ~~said~~ the image sensor with respect to ~~said~~ the contact part is ~~recognized~~ based on ~~input and output~~ input/output terminals of ~~said~~ the image sensor in the first image information captured in ~~said first image capturing step.~~

21. (Currently Amended) ~~An~~ The image sensor test method as set forth in claim 17, further ~~provided with~~ comprising:

~~a second imaging step of capturing an~~ a second image of ~~said~~ the contact arm in the state not holding ~~said~~ the image sensor[[,]];

~~a third image capturing step of capturing an~~ a third image of ~~said~~ the image sensor in a state not held by ~~said~~ the contact arm from the light receiving surface side[[,]];

~~a second recognizing step of recognizing a relative position of~~ said the image sensor with respect to ~~said~~ the contact arm based on the second image information captured in ~~said second imaging step and~~ the third image information captured in ~~said third imaging step,~~ and

~~a second correcting step of correcting the position of said the image sensor in the state not held by said the contact arm based on the relative position of said the image sensor with respect to said the contact arm-recognized in said second recognizing step.~~

22. (Currently Amended) ~~An~~ The image sensor test method as set forth in claim 17, wherein, ~~in said first recognizing step,~~ the relative position of said the image sensor in the state held at said the contact arm with respect to said the contact part is ~~recognized further based on the image information capturing said the contact part.~~

23. (Currently Amended) ~~An~~ The image sensor test method as set forth ~~claim 16~~ claim 17, wherein the contact arm has:

a holding side arm configured to hold the image sensor;

a root side arm fixed to a moving device configured to move the contact arm; and

a lock-and-free device provided between the holding side and the root side arms and configured to be able to lock or free planar movement of the holding side arm with respect to the root side arm in an X-Y plane substantially parallel to the contact part,

the image sensor testing method further comprising:

~~said first correcting step includes a step of correcting a moving the root side contact arm of said ~~contact arm~~ by making it move relative to [[a]] the holding side contact arm of said ~~contact arm~~ in an X-Y plane substantially parallel to said ~~contact part~~ of the root side ~~contact arm~~ in the free state of the lock-and-free device; and[[,]]~~

then locking said the root side contact arm with respect to said the holding side contact arm by the lock-and-free device.